

**ABSTRACT**

The invention relates to an ECG system for the large-surface measurement of ECG signals which is characterized by a first measuring device (10) for generating a first set of readings comprising at least one derivation of the electrical impulses of the heart. At least one site of derivation of the first measuring device (10) during recording of the large-surface ECG signals is variable. The system further comprises a second measuring device (20) for generating a second set of readings comprising at least one derivation of the electrical impulses of the heart. The site of derivation of the second measuring device (20) during recording of the large-surface ECG signals is spatially invariable in order to obtain continuous readings. A data processing system (30) is provided with means for synchronizing at least two signals of the first set of readings that are detected at different times with at least one continuously detected signal of the second set of readings. The inventive system allows for the large-surface detection of ECG signals and for their efficient use in everyday hospital routine.